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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,498	09/29/2005	Francois Figueras	0512-1252	5390

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YOUNG & THOMPSON
209 Madison Street
Suite 500
Alexandria, VA 22314

EXAMINER

SMITH, JENNIFER A

ART UNIT	PAPER NUMBER
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1793

NOTIFICATION DATE	DELIVERY MODE
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11/10/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DocketingDept@young-thompson.com

Office Action Summary	Application No. 10/519,498	Applicant(s) FIGUERAS ET AL.	
	Examiner JENNIFER A. SMITH	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 6-43 is/are pending in the application.
4a) Of the above claim(s) 9-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-8 and 28-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Application

Claim 1 has been amended.

Claims 4-5 are canceled.

Claims 9-27 are withdrawn from consideration.

Claims 1-3, 6-8, and 28-43 are presented for examination.

Withdrawal of Claim Objection

The objection to claim 1 is withdrawn in view of Applicant's amendments to the claim.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The rejection of claims 1, 2, 6-8, 28-30, 42, and 43 under 35 U.S.C. 103(a) as being unpatentable over Vaudagna et al. (Applied Catalysis, 1997), as originally set forth in the rejection dated 2/25/2009, stands.

In regard to claim 1, Vaudagna et al. teach tungsten oxide on a zirconia support [See Abstract]. The catalyst (IT form) exhibits 62-69% tetragonal phase [See Table 1].

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The sample is prepared by impregnation of the dried hydroxide support with a tungstic acid solution. With regard to these process limitations, “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113. The tungsten catalyst disclosed in the Vaudagna reference is substantially the same product as claimed and the process utilized to obtain the product is given little patentable weight.

In regard to claim 2, the specific surface area of the IT form catalyst is 54-55 m²/g after heating to 830°C. With regard to the different heating temperatures, “generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)”. See MPEP 2144.05 IIA.

In regard to the claim limitation to “10-25% by weight tetrahedral form” before and after calcination of the tungsten, Vaudagna et al. observe that the nature of surface

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tungsten species on $\text{WO}_x\text{-Al}_2\text{O}_3$ depends on the amount of WO_3 . For concentrations below 15% there appear tetrahedrally coordinated species of the WO_4^{2-} type; for concentrations between 15% and 24% appear octahedral polymeric WO_3 species in addition to the tetrahedral ones. Above 24% WO_3 , which corresponds to the monolayer ($4.3 \text{ W atoms nm}^{-2}$), bulk WO_3 crystallites are formed [See Page 270]. One of ordinary skill in the art would recognize a tungsten species, deposited on a similar oxide support (ZrO_2) at 20 wt% [See Table 1, IT] would contain both tetrahedral and octahedral structures. The specific weight percent is not explicitly disclosed but the solid taught by the Vaudagna reference is substantially the same as Applicant's claimed solid and one would expect a similar value with regard to the molecular geometry of the tungsten oxide.

In regard to claim 6, Vaudagna et al. teach the solid is on a zirconia support [See Abstract].

In regard to claim 7, Vaudagna et al. teach additional platinum catalyst on the tungsten-zirconia solid [See $\text{Pt/WO}_x\text{-ZrO}_2$ in Table 1].

In regard to claim 28, Vaudagna et al. teach 20 wt. % tungsten oxide on a zirconia support [See Table 1].

In regard to claims 8, 29, 30, 42, and 43, Vaudagna et al. teach the catalysts are heated to temperatures of about 800°C. With regard to the different heating temperatures, “generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)”. See MPEP 2144.05 IIA.

The rejection of claims 3, 31-41 under 35 U.S.C. 103(a) as being unpatentable over Vaudagna et al. (Applied Catalysis, 1997) in view of Sohn et al. (Langmuir, 1998), as originally set forth in the rejection dated 2/25/2009, stands.

In regard to claim 3, Vaudagna et al. do not explicitly teach the acidity of the catalyst. The super-acidity of the material is attributed to the W-O-Zr species formed between WO₃ and ZrO₂ [See Page 279, Column 2, First Paragraph].

Sohn et al. disclose different characterizations of prepared tungsten-oxide-zirconia catalysts. Figure 8 shows the relationship between acidity and WO₃ content. Vaudagna et al. disclose tungsten wt. percents (17.6-21.6 wt. %) within the required range of acidity (0.1-0.5 mmol/g) and one of skill in the art would recognize a catalyst like those described in the Vaudagna reference would have acidities above 0.1 mmol/g.

In regard to claims 31, 32, 35 and 36, Vaudagna et al. do not explicitly teach specific surface area within the claimed ranges.

Sohn et al. disclose different characterizations of prepared tungsten-oxide-zirconia catalysts. Figure 6 shows the relationship between surface area and WO_3 content. Vaudagna et al. disclose tungsten weight percents (17.6-21.6 wt. %) within the required range of surface area (86-150 m^2/g) and one of skill in the art would recognize a catalyst with a high specific surface area would result in increased catalytic activity by providing more surface points of contact between the catalyst and material being catalyzed.

In regard to claims 33 and 34, Vaudagna et al. teach the catalysts are heated to temperatures of about 800°C. With regard to the different heating temperatures, “generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)”. See MPEP 2144.05 IIA.

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In regard to claims 37-39, Vaudagna et al. do not explicitly teach the acidity of the tungsten-zirconia material.

Sohn et al. teach the acidity of zirconia-tungsten catalysts. This value can range from 0.1 to 1.62 mmol/g [See Page 6145, First Column, First Paragraph].

One of skill in the art would have been motivated to produce a catalyst with a high acidity value because acid sites are responsible for catalysis in certain hydrocarbon reactions and one would have been motivated to provide a catalyst with values within the claimed ranges for optimal catalytic activity.

In regard to claims 40 and 41, Vaudagna et al. teach the catalysts are heated to temperatures of about 800°C. With regard to the different heating temperatures, “generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)”. See MPEP 2144.05 IIA.

Response to Arguments

Applicant's arguments filed 08/25/2009 have been fully considered but they are not persuasive

Applicants argue the Vaudagna reference teaches away from the claimed solid. The reference teaches that with more than 15% WO₃ on the support, the obtained catalyst will comprise tungsten in tetrahedric and octahedric forms. The reference also notes that when there is less than 15% WO₃ on the support, tungsten has a tetrahedric coordination. Applicants claim 10 to 25% by weight tetrahedral geometry. Therefore, at values below 15% the Vaudagna reference teaches a composition composed entirely of tetrahedral tungsten oxide. This value is included in Applicant's claims. Between 15 and 24%, the Vaudagna reference teaches a combination of octahedral and tetrahedral geometry and one would expect the materials in the lower end of this range to exhibit the characteristics required by Applicant's claims. With respect to the overlap of the ranges taught in the reference and those required by Applicants, "in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists". See MPEP 2144.05 I.

Applicants argue the method of Vaudagna produces a different solid. The solid has been shown to have the same characteristics as that claimed, with up to 15% tetrahedral (and likely a greater range) characteristics by weight. The arguments are based on the preparation of the solid under acidic conditions. The product has been

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made obvious over the Vaudagna reference and the process limitations in the product-by-process claims are not given patentable weight. “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113. The tungsten catalyst disclosed in the Vaudagna reference is substantially the same product as claimed and the process utilized to obtain the product is given little patentable weight.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., more than 15% tungsten in tetrahedric form) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The claims set forth a range - 10-25% - overlap with the ranges taught in the Vaudagna reference and Applicants arguments are drawn to more narrow limitations than those claimed.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections

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are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicants argue the Sohn reference does not teach or suggest a catalyst with more than 15% tungsten having tetrahedric coordination with such acidity. The Vaudagna reference discloses a substantially similar composition and the Sohn reference is provided to make obvious the property of acidity in the composition.

Conclusion

Claims 1-3, 6-8, and 28-43 remain rejected.

No claims are allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER A. SMITH whose telephone number is

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(571)270-3599. The examiner can normally be reached on Monday - Friday, 8:30am to 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571)272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J.A. LORENZO/

Supervisory Patent Examiner, Art Unit 1793

Jennifer A. Smith

October 26, 2009

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JS